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NOTES OF OBSERVATIONS
OF
INJURIOUS INSECTS.

1st REPORT, 1877.

LONDON:

T. P. NEWMAN, PRINTER, BOTOLPH LANE, EASTCHEAP.

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1878.

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I N D E X.

Abraxas grossulariata, 16
 Agriotes obscurus, 9
 Agriotes (*var. sp.*), 9
 Anthomyia ceparum, 7
 Asilus Crabroniformis, 13
 Asparagus Beetle, 17
 Athalia spinarum, 11
 Athoüs hæmorrhoidalis, 10

 Barley, 9

 Cabbage Butterfly, 8
 ——— Fly, 18
 ——— Moth, 8
 ——— Weevil, 17
 Carrot Fly, 7
 Cecidomyia Tritici, 12
 Celery Fly, 10
 Cephus pygmæus, 12
 Ceutorhynchus sulcicollis, 17
 Chaff, destruction of, 12
 Charlock, 6
 Chlorops tæniopus, 11
 Clouded Yellow Butterfly, 13
 Clover, 15
 Colias Edusa, 13
 Corn Sawfly, 12
 Crioceris asparagi, 17

 Dust, road, 7, 18

 Gooseberry Caterpillar, 16
 Grub in Cabbage, 17

 Halticidæ, 6
 Hoeing, 10
 Hornet Fly, 13

Lawes' Turnip Manure, 9
 ——— Mangold Manure, 10
 Lime, 17
 Liquid applications, 7, 8

 Mamestra Brassicæ, 8
 Manure, farmyard, 10
 ——— Lawes', 9, 10

 Neuroterus lenticularis, 17

 Oak spangle, 17
 Onion Fly, 7

 Phædon betulæ, 19
 Pieris Brassicæ, 8
 Pigsties, liquid from, 7
 Psila Rosæ, 7

 Red Maggot, 12
 Road-dust, 18
 Rust, 8

 Sirex gigas, 13
 Soda, carbonate of, 9
 Soot, 17
 Stirring land, 10

 Tephritis Onopordinis, 10
 Trefoil, 15
 Turnip Flea Beetle, 6
 ——— Fly, 6
 ——— Sawfly, 11

 Weevil, Cabbage, 17
 Wireworm, 9
 Wheat Midge, 12

NOTES OF OBSERVATIONS
OF
INJURIOUS INSECTS.

REPORT, 1877.

THE request, made in the spring of the present year, for observations relative to insect injuries to the food crops, has been responded to far more cordially than could have been expected. Observers, both scientific and practical, have come forward to give the benefit of their experience, and the thanks due for their kind co-operation are offered both to those whose names are appended to their observations and also to the contributors of shorter notes. In the case of the *Colias* entries a few are taken by kind permission from those of the phenological observers of the Meteorological Society.

Whether much or little, those who will give the benefit of their knowledge in diminishing the great yearly loss from insect waste are doing good service to the country; and this first year's return shows how much may be gained by continuing the observations for the time which would be requisite to form fairly complete notes of treatment found successful generally, with the modifications required by each year's peculiar weather, or by soils and climates varying as widely as the range from Banff to South Devon.

The returns sent in are carefully preserved for reference as to details: for present use they give the following notes of remedies found successful in various districts; of presence or absence of injurious insects (information equally serviceable in either case, when accompanied by that of coincident circumstances); and more detailed observations of the great insect feature of the year—the extraordinary outburst of *Colias Edusa*, which, though little important as a “farm pest,” was selected for observation, from its intermittent appearances possibly throwing light on the cause of other occasional visitations of a more serious nature, as those of the *Athalia spinarum* (Black Jack),

or the devastating swarms of *Aphides*, as about the 25th of July, 1869. This year the weather influences, taken in the main, have been those of a drenching and mild winter, followed by an intermittently wet and sunless summer, and a dry early autumn, again followed by great rainfall.

The reports of insect observations are :—

1. *Halticidæ*, var. sp. Turnip Flea Beetle, or “Fly.” The absence of this insect is noted at Inverurie, Aberdeenshire ; in Essex, and in the Exeter and South Devon district in connection with wet weather ; and its slight presence at Maxwelltown, Dumfries, where the summer was unusually cold and wet ; whilst at Strathfield Turgiss, Hants, where the rainfall was only about half that of South Devon, as taken at Teignmouth in May, the Fly was then abundant. At Knebworth, Herts, an example is given of the value of surrounding weeds to the farm insects as a means of support till the crops are ready for attack, in the appearance of the Turnip Fly, mentioned by Mr. Benj. Brown as appearing first on Charlock in fields where Turnips had grown the previous year, and then causing great injury to the Kohl Rabi and Turnips ; this especially in dry weather. In North Lancashire, where vegetation was unusually backward at the end of May, the Fly was likewise very injurious ; and near Marlborough, where a great outburst in one locality came with the warmth of the later weeks of June, we are obliged to Mr. Tanner, of Ogbourne Maizey, for details of a remedy, which he mentions as having tried successfully in previous years. The plan followed is to drive a large flock of sheep on the attacked field early in the morning, whilst the dew is still on the leaf, and with the help of a dog to keep them in constant motion, and well up in a body, so as to tread over all the field in turn. Treated in this way no injury is done to the crop ; but if much ground has to be gone over it should be taken on different days, as it would injure the sheep to keep them long without food, or to harass them by the continued driving early in the morning. In this case the extent of ground was thirty-seven acres, and from four hundred to five hundred sheep were put on. The fly, when I saw it at the end of June, was so strong as to threaten clearing the crop, and it had almost been decided to plough it up ; but this treatment, which embodies disturbing and killing many of the insects by the treading, and which also makes the leaves distasteful for oviposition, both by rubbing of the sheep and the coat of dust scattered in dry weather, saved the plants, and was followed by a good crop. In my own garden, near Isleworth, where the Fly had been present, and some-

times very destructive, during the last three years, I have found simply sprinkling the young Turnips with road-dust preserved them entirely from injury. Mr. Rolfe, writing from Welbeck Abbey Gardens, near Worksop, mentions the Turnip Fly as more abundant than usual, but partial in its attack, the crop escaping in some places, whilst in others, under apparently similar circumstances, it was nearly or entirely destroyed. The preceding crop is noted as being generally Wheat, the soil strong loam, and the manure usually from the farm-yard. Further information, whether variation in the presence of Fly followed variation in these respects, would be of interest.

2. *Anthomyia ceparum*. Onion Fly. This was noticed by Mr. James Kaye as particularly destructive near Bury, in Lancashire. The eggs of the Fly were first observed on the 21st of May, laid where the leaves divide, the larvæ hatching after a few days, and feeding on the seed-blade till they reached the root, then striking into the bulb, if formed, otherwise into the root, and soon destroying the plant. The soil was mostly light and in high cultivation, and pulverized gas-lime scattered amongst the Onions was found to act well in keeping off the insects. Watering the Onions with the liquid from pigsties, run into a tank specially arranged for the purpose, was found to answer still better. Several of the residents who adopted this plan secured good crops, whilst in the cases where it had not been followed the crops were for the most part destroyed. Near Isleworth but little injury was noticed amongst the Onions from the Fly, though in 1876 it had been reported as very destructive; and the bulbs this year were in some cases much diseased from other causes.



PSILA ROSÆ.

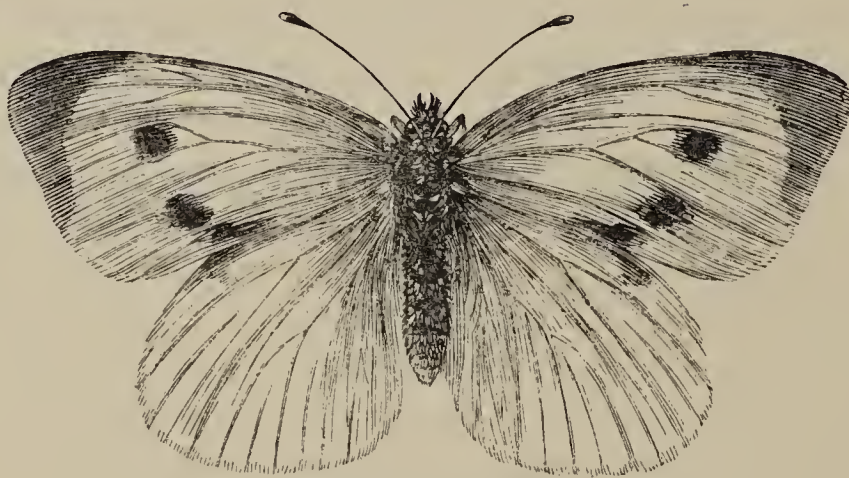
3. *Psila Rosæ*. Carrot Fly. Little noticed, except at Maxwelltown; Dumfries, where Mr. Robt. Service mentions it as first observed on July 10th, and as being every season the cause of much loss, two-thirds of the crop being destroyed on light gravelly soil. In moss and clay lands it does no damage. In gardens, a preparation of a wine-

glassful of paraffin oil to a gallon of water destroys the insects, but kills the crop also if applied in dry weather. Mr. Kaye mentions, from Bury, that in dry seasons he has found watering the Carrots through a fine-rosed watering-can keeps them clear from rust, if thoroughly done; this probably being beneficial by the stimulation of growth, which is usually a great preventive of insect attack.



MAMESTRA BRASSICÆ.

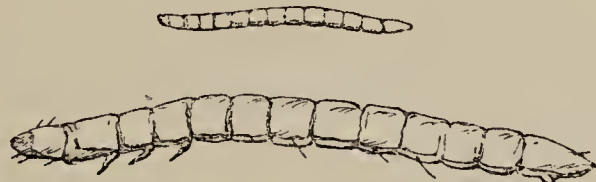
4. Mamestra Brassicæ. Cabbage Moth. Is mentioned by Mr. Edw. Parfitt as being plentiful at Exeter, though late in appearance, and not so destructive to the crops as in the dry seasons. At Bury, Lancashire, it is described as a "regular pest." In other localities it is little noted.



PIERIS BRASSICÆ.

5. Pieris Brassicæ. Cabbage Butterfly. Owing to the ungenial spring this Butterfly was apparently later than usual in appearance. It was first observed on the 25th of May, near Maldon. At Isleworth, *Pieridæ* were out on the 25th, but the first *P. Brassicæ* was not noticed till the 29th of May; and the amount of appearance of Cabbage Butterflies varied much with the amount of shelter provided for the previous stage of pupation. In the neighbourhood of Isleworth, where the main field-crop of the district is of different kinds of Cabbage, the proportion of shelter is small to the amount of ground; whilst at Marlborough the Rev. T. A. Preston mentions the large numbers to

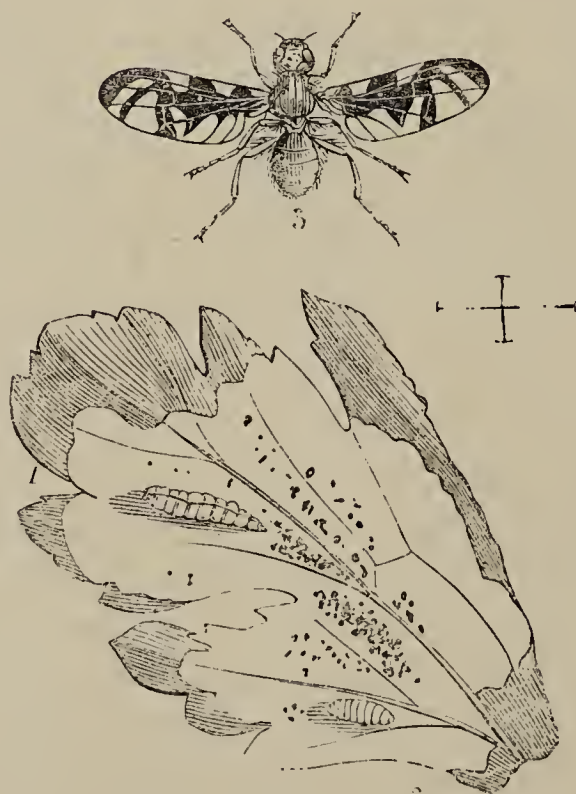
be found infesting sheltered gardens. A search under dry eaves, rough boardings or palings, and in the sheltered nooks which abound in garden ground, but are comparatively absent in open-field cultivation, will at times bring scores and hundreds of pupæ to light, and serve to diminish the pest appreciably. At Welbeck Abbey, N. Notts, the first specimen was noticed by Mr. Rolfe, on the 22nd of May, the general appearance of the vernal brood occurring from the 3rd to the 24th of June, and of the larvæ from the 27th of June till the end of July, the number of imagos, and more especially of the larvæ, being less than in the two preceding years. The autumnal brood (which in 1876 had been numerous and destructive) was scarce and late, the appearance of imagos ranging from the 12th of August to the 15th of September, that of the larvæ from the end of August to the end of September, and little injury being caused. The weather is noted as being exceptionally cold, inclement, and sunless throughout the summer, until the second week in September.



AGRIOTES OBSCURUS.

6. *Agriotes*, var. sp. Wireworm. At Bury, Mr. Kaye mentions that a solution of carbonate of soda, in the proportion of about two ounces to sixteen quarts of water, applied three or more times from the beginning of May, to the beginning of June, is found a good way to clear the ground. At Knebworth, Mr. Benj. Brown notes Wireworm (*Agriotes obscurus*) in considerable numbers, as attacking the Barley sown after dead fallow. He drilled Lawes' Turnip manure with the bulk of the field, and on this the Barley grew rapidly away from the Wireworm; whilst on two pieces (each seven feet wide), left across the field without the manure, more than half the plants were destroyed. This difference is noted as having been observed on previous occasions. On the 28th of April Mr. Edward A. Fitch noticed an attack of Wireworm on somewhat more than thirty acres of Barley, which had been sown towards the end of March, after summer fallow, near Maldon, in Essex; whilst Barley sown in the same field on the 16th and 17th of April, and not then up, was not afterwards affected by it. This land he had manured with sixteen to

eighteen cartloads of farmyard cake-fed dung per acre, put on after harvest. In another field of fourteen acres of Mangolds, sown late in April, which came up well, but grew slowly on account of bad weather, Mr. Fitch noticed the Wireworm abundantly in May. The ground in the previous season had been in Turnips, and Mangolds (which were destroyed by surface caterpillars, and other insects), and subsequently well cultivated throughout the spring. Six acres were manured with fourteen loads of cake-fed dung, and the whole with five hundredweight per acre of Lawes' Mangold manure, but no difference was observed in the degree of Wireworm attack. It is noticed round Maldon that the Wireworms, which (as far as is known) are usually the larvæ of *Athoïs hæmorrhoidalis*, appear more troublesome on the heavy land after a fallow. Amongst root crops the remedies used are furrow-hoeing, horse-hoeing twice in a place, hand-hoeing close to the rows, and then chopping out to stop the Wireworm's working in the drills; but, however it may be done, stirring the land well is considered the best remedy with root crops. Amongst corn crops rolling with a heavy roller, or, if possible, on the lighter soils, with a Crosskill's clod-crusher, is the usual remedy. In one case the object is to solidify the surface, and so stop the Wireworm's working; in the other (the root and green crops), to stimulate growth in the young plants, besides disturbing the larvæ.



TEPHRITIS ONOPORDINIS.

7. *Tephritis Onopordinis*. Celery and Parsnip Fly. Scarcely noticed. At Maldon no traces were observable up to November 7th;

afterwards there was a very slight appearance ; this being almost on the same spot where the Celery was greatly injured last year by *Tephritis* ravages. At Isleworth it is only noticed as appearing in one garden, after the dry weather in October. Scarcely to be found at Welbeck Abbey, N. Notts, though plentiful last year.



ATHALIA SPINARUM.

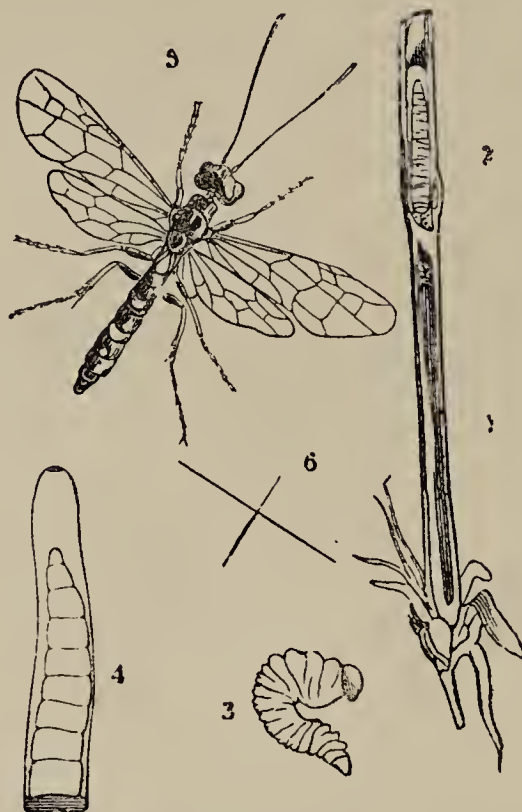
8. *Athalia spinarum*. Turnip Sawfly. Little noted. Absent in Essex, and also round Isleworth. At Inverurie Mr. Tait mentions that he has very rarely seen the larvæ, and not during this year. Observations on this insect are particularly desirable.



CHLOROPS TÆNIOPUS.

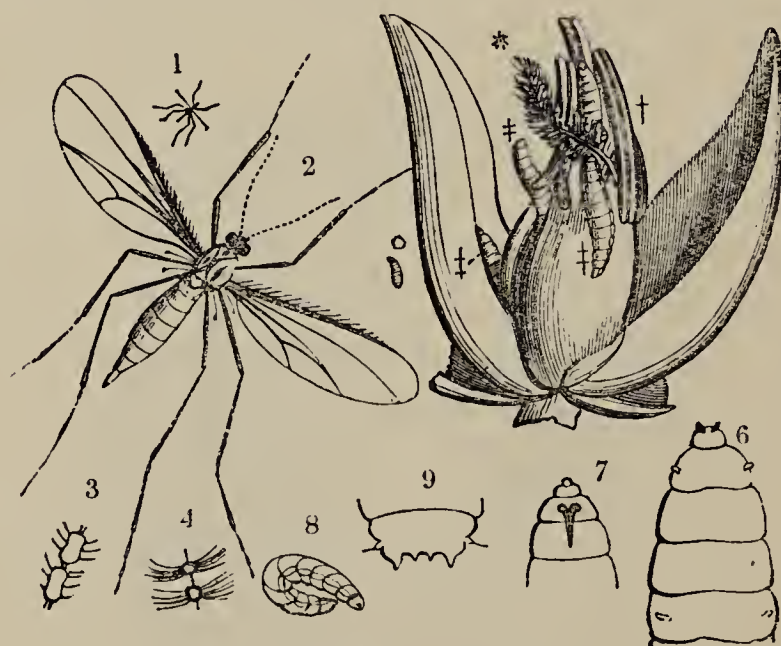
9. *Chlorops tæniopus*. A small quantity near Maldon ; and a

few stems (also of Wheat) channelled by some species of *Chlorops* in a neglected, clayey field, near Isleworth,—the only returns.



CEPHUS PYGMÆUS.

10. *Cephus pygmæus*. Corn Sawfly. Not noticed.



CECIDOMYIA TRITICI.

11. *Cecidomyia Tritici*. Wheat Midge, or Red Maggot. Is mentioned as unusually abundant at Knebworth, Herts, and unusually absent in Essex. It is observable that in Essex the chaff is used for cattle, consequently destroyed with its contents, whatever they may be; whilst the custom prevalent some few years ago (probably still), in some parts of the West of England, of throwing the chaff in heaps

to decay, provided the Maggot with good shelter during the winter to develop in the following June, and so infest the neighbourhood. Any observations as to quantity of Red Maggot in summer, varying with shelter provided for it in winter, would be very desirable.



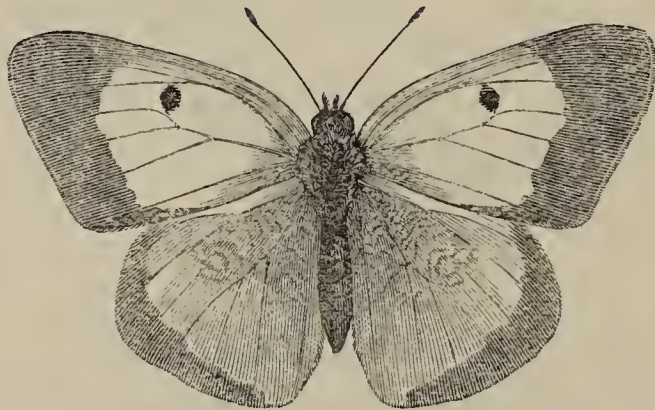
SIREX GIGAS.

12. Sirex gigas. Not uncommon this year. Captured on the 17th August, at Great Cotes, Lincolnshire (a rare insect in that district).

13. Asilus Crabroniformis. Hornet Fly. Was observed by Mr. Parfitt on the 13th of August, as plentiful, at Prawle-Heads, and the adjoining high-lands on the South Devon coast, amongst sheep and cattle, always settling on the excreta of the latter; and on the 1st of September it was noticeable in a pasture field, near Isleworth, the exposure and weather being warm and sunny.

14. Colias Edusa. Clouded Yellow Butterfly. This—the great appearance of the year—is not observed at all in such few localities of the North-East of Scotland as we have notes of. It was first seen near Dumfries, early in June, but not noticed in any quantity till August at the points of observation in Cheshire, Herefordshire, and Lincolnshire; whilst across the South of England it was generally observable from June till October, the proportion of males and females varying much in different localities during August, and possibly giving a clue to next year's amount of appearance; whilst

the frequent death of the larvæ, when feeding on various Clovers and Trefoils, is also of interest relatively to its permanent settlement. The absence of the *Colias Edusa* is noted at Banff by Mr. Thomas Edward; also at Inverurie, Aberdeenshire, by Mr. Tait, although one specimen is recorded by him (in the Scot. Nat.) as seen at Harray, Orkney, on the 19th of June. At Maxwelltown, Dumfries, it appeared on the 3rd of June in fair numbers, after an absence of sixteen years, but was confined to Clover fields, sown out in the spring of 1876. In Cumberland it was seen in some numbers at various places, including Workington, where it had not appeared for forty years previously; and it extended up to the Scottish border. At Darlington, Durham, a few were seen up to the 1st of October. Near Northwich, Cheshire, Mrs. Leathes records the *Edusa* as being first represented, on June 20th, by a much-injured female specimen, others only beginning to appear about the 11th of August, and continuing till the beginning of



COLIAS EDUSA.

September. They are noted as very abundant, and as not having been seen in the neighbourhood for many years, and never in the great numbers of the present season. The *Edusa* is also recorded as numerous during the summer throughout Cheshire. At Bishop's Frome, Hereford, the Rev. H. L. Graham gives them as rather common during August and September, only one specimen having been observed by himself in the neighbourhood in previous years. Mr. Rolfe notes one specimen only, as observed at Welbeck Abbey, N. Notts, on September 8th; but that a little further south, and at Nottingham, it was more abundant, several being taken, both of the vernal and autumnal broods. At Great Cotes, Lincolnshire, the chief appearance of the *Edusa* is noted by the Rev. J. Cordeaux, on August the 17th; out of forty specimens captured, three only being females. Near Norwich we have notes of its occasional appearance, in the latter part of August, from the Rev. A. S. Ormerod; and it was also observed on the 27th of September.

At Knebworth, Herts, they are noted by Mr. Benj. Brown as first observed on the 4th of June; on the 21st a specimen was seen ovipositing on Trefoil; the larva hatched on the 29th, and fed a few days on White Clover, but then died. The second brood began to fly on the 30th of July (one fresh from the chrysalis being taken on that day), and the numbers continued to increase till the middle of August, a few remaining till the 2nd of October. Near Maldon, Essex, Mr. Fitch's almost daily notes show the imagos as first observed on the 6th of June, and eggs laid the same day on Trefoil, which hatched on the 14th, the first pupa being observed on the 9th of July; eggs of the second brood, laid on the 29th of July, hatched on the 7th of August, and pupæ were observed from the 12th to the 29th of September. The presence of the butterfly was noticed on eighteen days from June 6th to July 2nd, and (after its absence during the following twenty-eight days of July) it was again noticeable on the 30th, and continued, with the exception of the 10th of August, and three other days, till the 1st of September, the appearance not wholly ceasing till the 6th of October. Of the hundred and six imagos bred by Mr. Fitch, from the 21st of July to the 15th of August, forty-nine were males, fifty-seven females; those hatched during the first few days being only males, those during the last few days only females. At Isleworth I observed the butterfly first on the 15th of June, and on the 20th they were moderately plentiful, and continued (but only as scattered specimens, or a very few seen near together) throughout the warm weather. Of a few eggs sent me by post the larvæ hatched, and fed on young Clover leaves, but all died in the course of two or three days. A few specimens of the *Edusa* had been seen in the district in the previous year. At Addington, Winslow, Bucks, Mr. J. Matheson notes the appearance of the butterfly in some numbers in August, continuing till the 6th of September (the date of the observation); two specimens only, a male and a female, having been observed in the previous twenty-three years, these appearances years apart, and the latest in 1868. At Strathfield Turgiss, Hants, the Rev. C. Griffiths gives the earliest of any of the noted dates of appearance; this was on the 25th of May; the butterflies subsequently occurred in profusion in July, and were common in August, and—as at Great Cotes—there was a great preponderance of males, out of one hundred and fifty captured only four being females. The butterfly is also mentioned by Mr. W. Buckler as in great quantities near Emsworth, Hants, in June. At Marlborough, Mr. Manders notices the first appearance on June 9th; the last, as far as known, not later than October 2nd; the greatest amount on August 24th, nearly all the imagos being female: one specimen was observed to lay two eggs on separate plants of Trefoil,

these being of a light yellow when laid, turning before hatching to a deep orange; but, as noted in some other cases, the larvæ died a few days after hatching. A much-worn specimen of the variety *Helice* was captured in the neighbourhood on the 20th of August; and other specimens of this variety were noticed. In the Exeter and South Devon district the *Edusa* was first observed by Mr. Edw. Parfitt, on the 7th of June, and is noted by him as literally swarming in the fields from June till September, especially on Barley, near Prawle-Heads, and in such numbers on Scabious flowers that several specimens could be taken with one sweep of the net. Fresh specimens, as if newly hatched, were still to be taken in the middle of October; and two of the variety *Helice* in good condition were captured near Exeter, about the 20th of November. At Chagford, on Dartmoor, the most south-westerly of the stations observed, Mr. W. H. Grattann notices the prevalence of the *Colias Edusa* wherever he went, whether amongst hedges, or in the fields, or on the moor itself.



ABRAXAS GROSSULARIATA.

15. *Abraxas grossulariata*. Gooseberry Caterpillar. Is noticed as little observed near Northwich, by Mrs. Leathes; also as little present in Essex, or in the South Devon district. At Maxwelltown, Mr. Service mentions it as not destructive to the Currants or Gooseberries, in fact rarely seen on the bushes; but that the leaves of the white *Ribes* are every year stripped by the caterpillar. Mr. W. Tait notes it as being as yet absent in the immediate neighbourhood of Inverurie, Aberdeenshire, although it is plentiful on various sides, at distances of from five to seven miles; the circumstances accompanying this difference of appearance would be well worth noting. Near Isleworth there was no appearance of the caterpillar in my own garden, where the bushes have the soil well stirred beneath them;

but at about a mile distance it was troublesome. A mixture of lime and soot—thrown on the bushes in damp weather (so that it may adhere), in autumn—is found a good remedy.

16. *Neuroterus lenticularis*. The Common Oak Spangle. Is noted as plentiful in South Devon; but round Isleworth it has been so enormously abundant on some trees as to weigh down the foliage and cause premature withering. In Essex it has been less abundant than usual, many Oak-stubs being without a spangled leaf this year, on which they had been plentiful in 1876.

Amongst remedies for attacks of Injurious Insects beyond those mentioned in the list, Mr. W. D. Cansdale, of Witham, Essex, mentions an application which he has found successful this year in freeing his Asparagus from a bad attack of the *Crioceris asparagi* (Asparagus Beetle). The mixture consists of half a pound of soft-soap, quarter of a pound of flower of sulphur, and about the same quantity of soot, well mixed together in a pail of warm water. In this the infested shoots were dipped; and on inspection the next day it was found to have cleared the larvæ. The plants were syringed afterwards with warm water (merely to clear off the dirt left by the dipping), and soon resumed a healthy appearance, and were thus saved from an unusually severe attack; the *Crioceris*, when brought under treatment, being present on almost all the plants and stems, and noticeable by thousands in the larval stage, as well as in the egg.

In my own garden, near Isleworth, I stopped what was becoming a destructive attack by syringing the plants with warm water, just bearable to the hand: this sent off the larvæ, or loosened them so as to fall to a shake; and throwing soot liberally through the damp shoots to the ground destroyed the fallen grubs. This treatment repeated once or twice in the course of the season completely saved the plants, and the soot gave a luxuriant and healthy growth.

Mr. Tait draws attention to unusual injury to the Cauliflower and Turnip crops, round Inverurie, from galls on the root, much of the Cauliflower crop and nearly all the Turnips in some fields being lost from this cause.

Similar galls, produced by *Ceutorhynchus sulcicollis*, are excessively prevalent in the Cabbage-growing district round Isleworth, and information as to means of lessening the attack would be desirable. As the weevil grubs leave the galls, to undergo the pupal change in earth chambers little below the surface of the ground (and have

remarkable endurance, either of prolonged stay in the gall or of premature ejection from it), the plan of leaving the galled Cabbage stumps undestroyed, or of lightly burying them, is a sure means of increasing the numbers of the beetle. Reversely deep digging and change of crop mitigate the evil; but the knowledge of some dressing calculated to deter oviposition in the seed-beds would be very serviceable. Mr. J. Chambers (nurseryman), of Hounslow, informs me that he finds throwing road-scrappings thickly amongst the seedlings to act well in keeping off both Cabbage Weevil and Cabbage Fly maggots, and to be beneficial to the plants as manure.

For the coming season aid has already been kindly promised from observers in various quarters, and it is hoped those who have now given the benefit of their experience will kindly continue their assistance. Few but those practically acquainted with the subject know the great service that is being rendered in discovering the causes of the great insect attacks to the food crops, so that they may be counteracted or nipped in the bud, rather than an attempt made to meet them when the mischief is at its height, and too often past cure; and for this purpose notes from practical men, such as have now come forward, would, if they would kindly favour us with them, in a very few seasons give a mass of information of great working value.

The same list of species will stand for another year (that further information regarding treatment under various circumstances may be gained); but should observers meet with any extraordinary insect appearances, either injurious or otherwise, full details will be serviceable. The remedy for the pest when fairly present (if it is still available) is a great point gained, but almost equally so is any information why it is there at all. We have some knowledge of how particular weeds and preparations of soil, certain weather and kinds of shelter, act on insect life; but we need to know more of these, and also of the power of the plant itself in various states of health for resisting attack, as shown in what is termed "growing past" or "away" from the infesting insect.

It is obvious that a healthy plant is not as soon dragged down by exhaustion of its juices as a weak one, but beyond this it appears as if certain states of the vegetable were requisite to keep the feeder on it in health. In the case of the Celery Fly the grubs inside the leaf-blisters may be watched for weeks—healthy progress in fine weather alternating with disease or death from diarrhœa in rain, apparently from the more succulent nature of the food; and young Cabbage attacked by *Aphides*

may be brought round by such liquid stimulants as will drive on growth luxuriantly, the improvement in this case being apparently only from the nature of the plant juices, as the rapid succession of generations of *Aphides* would, if their pasturage suited, keep pace with its increase. The frequent coincidence of Turnip Fly with drought is another instance of the same principle, and how far it may go would be well worth knowing practically.

The abnormal presence or absence of insects is a point on which the notes of the *Colias Edusa* for this year may throw light in the coming season. The remarkable difference in quantity of the sexes observed at various stations may be followed by coincident variety of appearance next year; and the death of the larvæ on Clover, although one of the plants that the *Colias* mainly affects, is another interesting point.

The special injury caused by insects not usually hurtful, being rendered so by their multiplication, is also illustrated this year by the many acres of Mustard and Turnips, in Cambridgeshire, which have been destroyed by the *Phædon betulae*, a chrysomelideous beetle, abundant on cruciferous plants, but not generally destructive.

Any notes of insect presence or absence, with their coincidences, will be of service; and observers are requested to forward any observations they will be good enough to take, either as they occur or during October, to the Rev. T. A. PRESTON, The Green, Marlborough, Wilts; or to E. A. FITCH, Esq., Maldon, Essex; who will be happy to give every information in their power. The sheets for entry of Observations, and pamphlet of notes for observers of Injurious Insects, will also be sent by them on application; or by Mr. T. P. NEWMAN, 32, Botolph Lane, Eastcheap, London, E.C.; and I may be permitted to add that though, from having for many years devoted myself especially to the study of Economic Entomology in its practical bearings, the notes have this year been placed in my hands for arrangement, yet it would give me great pleasure should any more skilled observer come forward to aid in what is a matter of great utility to us all.

E. A. ORMEROD.

DUNSTER LODGE, NEAR ISLEWORTH,
LONDON, December, 1877.

